

## Documentation for Constants.h

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See the document “LibDoc” for general information about this and other libraries.

```
#define c_SI 2.99792458e8          // m/s
#define c_SSI 2997.92458            // Å/fs
#define hbar_SI 1.054588664e-34    // J s
#define hbar_SSI 0.1054588664       // aJ fs
#define amu_SI 1.6605655e-27        // kg
#define amu_SSI 16.605655           // 1e-28 kg
#define e_SI 1.6021892e-19          // C
#define e_SSI 0.16021892             // aC
#define eps_SI 8.854187818e-12      // C^2/J m
#define eps_SSI 8.854187818e-4       // aC^2/aJ Å
#define NA_SI 6.022045e23           // unitless
```

Requires: nothing

Example program: VSEsim.c

Written 1/00. Works with Metrowerks C.

This is just a header file, with no routines. It is a collection of fundamental and commonly used constants, using both mks units (SI) and small units (SSI). The fundamental and derived units are:

property	SI	SSI
length	m	Å
mass	kg	$10^{-28}$ kg
time	s	fs
current	A	mA
temperature	K	K
force	N	$10^{-8}$ N
charge	C	aC
resistance	$\Omega$	k $\Omega$
energy	J	aJ
power	W	mW
potential	V	V

The constants are:

c	speed of light
hbar	Planck's constant/ $2\pi$
amu	atomic mass unit
e	electron charge
eps	electrical permittivity of space
NA	Avagadro's number

Possible change: All letters of these constants should be capitalized to conform with my standard notation.